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SUPPLEMENTARY INFORMATION

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Rapid transition from continental breakup to igneous oceanic crust in the South China Sea

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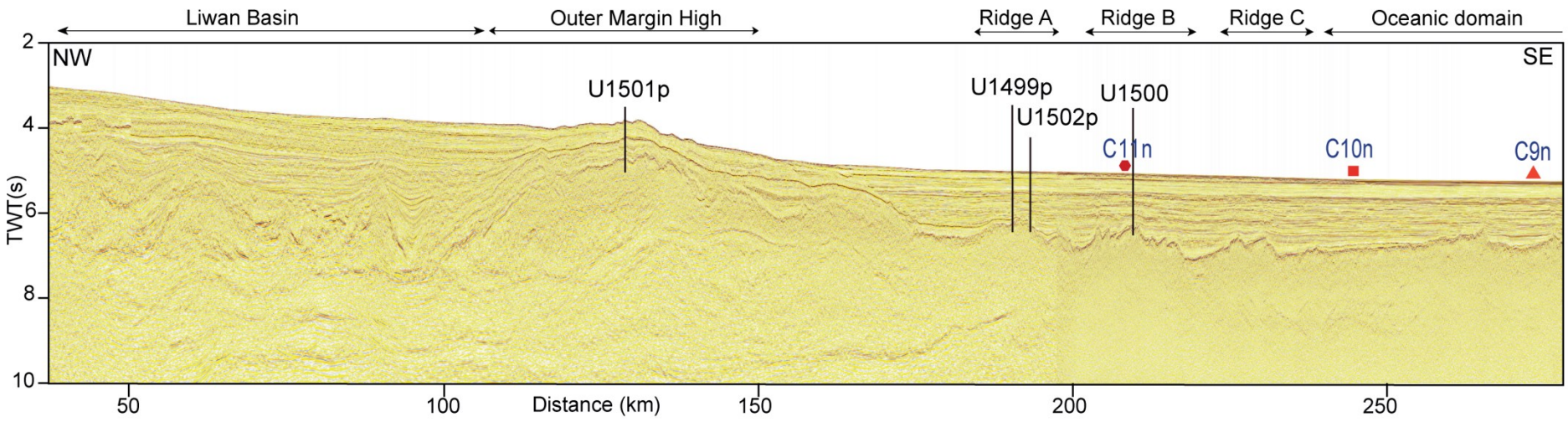
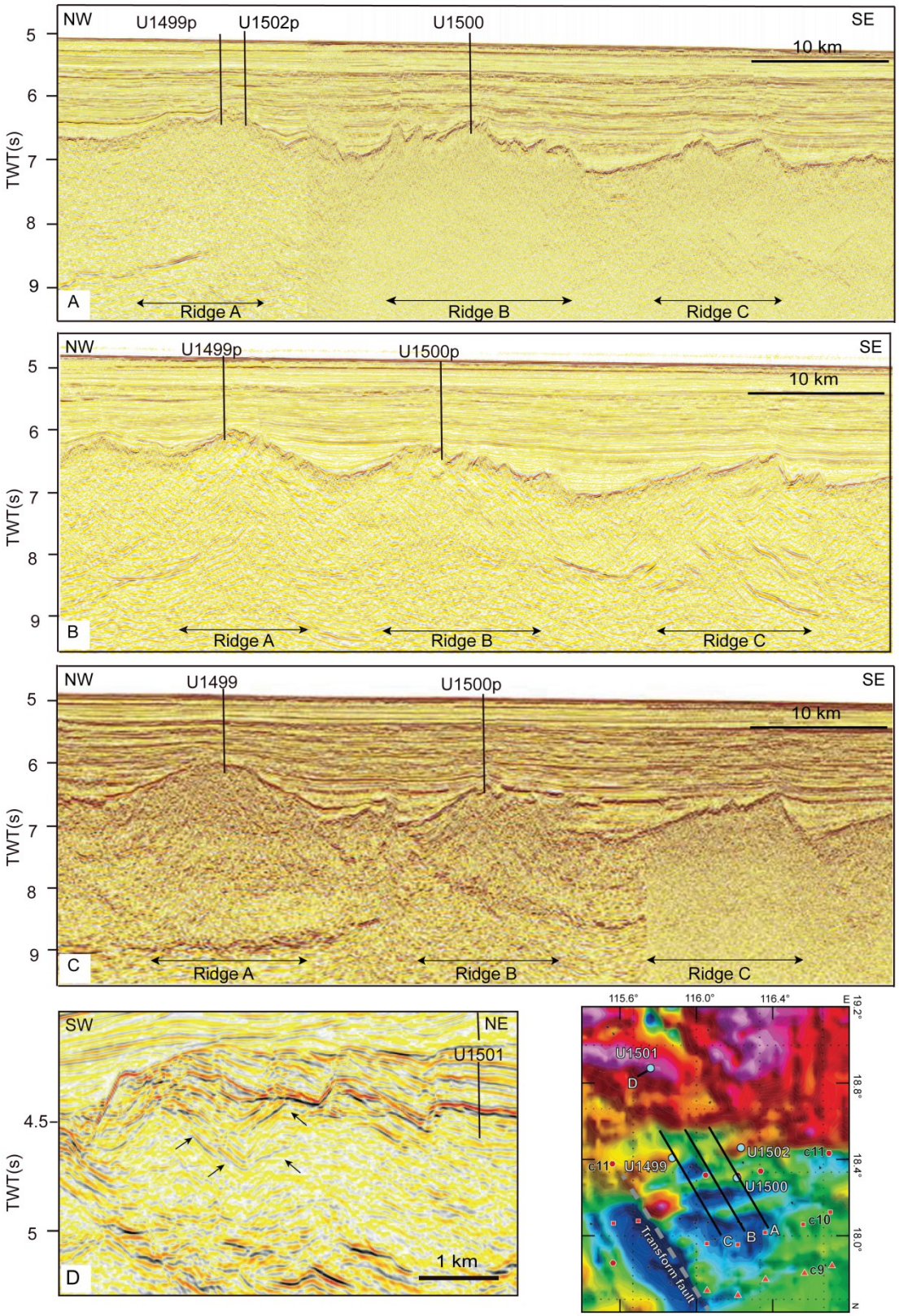
This document contains supplementary figures S1 and S2 and supplementary table S3



Supplementary material 1: Un-interpreted regional seismic reflection profile crossing the northern SCS margin with the location of IODP Sites[17] and magnetic chrons[19]



Supplementary material 2: A, B and C un-interpreted seismic profiles crossing Ridges A,B and C showing the continuity of these structures along the northern SCS margin. D, un-interpreted seismic line located on the OMH, arrows indicated tilted and folded reflectors truncated by Tg. Map of time depth to acoustic basement (Tg) showing seismic lines, Sites and magnetic chron locations.

Exp	Site	Sample	Depth (mbsf)	SiO_2 (wt %)	TiO_2 (wt %)	Al_2O_3 (wt %)	Fe_2O_3 (wt %)	MgO (wt %)	MnO (wt %)	CaO (wt %)	Na_2O (wt %)	K_2O (wt %)	Total (wt %)	LOI (%)	Ba (ppm)	Cr (ppm)	Sc (ppm)	Sr (ppm)	V (ppm)	Zn (ppm)	Zr (ppm)
367	**U1500B**	**57R-2, 36-39cm**	**1380.54**	49.94	1.53	15.86	11.41	5.58	0.22	12.46	2.99	0.56	100.53	2.55	10.8	282	35.1	187	262	64	108
367	**U1500B**	**57R-CC,15-18cm**	**1387.06**	52.33	1.52	16.71	8.45	6.80	0.16	11.58	3.32	0.21	101.06	1.09	26.3	291	36.4	195	263	74	109
367	**U1500B**	**59R-5,112-114cm**	**1404.02**	51.23	1.29	17.06	8.27	7.13	0.12	11.31	3.14	0.23	99.76	1.58	17.3	283	31.2	168	222	61	96
367	**U1500B**	**60R-4, 135-138cm**	**1413.51**	50.96	1.54	15.82	10.19	7.24	0.17	11.22	3.06	0.24	100.42	1.48	28.1	261	34.7	206	265	70	117
368	**U1502B**	**17R1, 57-59 cm**	**825.67**	53.40	1.72	17.51	7.71	5.28	0.20	9.37	3.58	0.11	98.88	5.21	27.8	213	36.6	224	248	106	126
368	**U1502B**	**36R3, 131-133 cm**	**915.34**	51.70	2.06	15.24	11.99	5.36	0.19	9.98	3.04	0.17	99.71	6.97	42.0	-	35.9	188	275	90	161
368	**U1502B**	**21R2, 51-53 cm**	**845.9**	51.39	1.63	17.61	9.67	5.51	0.16	9.17	3.48	0.40	99.00	4.84	40.4	213	33.8	233	230	117	120
368	**U1502B**	**23R2, 65-67 cm**	**851.99**	53.29	1.71	16.26	8.84	5.69	0.27	6.40	2.73	0.16	95.33	6.51	-	-	41.3	228	269	176	123
368	**U1502B**	**28R1, 74-77 cm**	**873.74**	52.71	2.01	15.79	11.55	5.87	0.20	3.96	3.94	0.10	96.12	5.92	-	-	38.8	216	277	246	157
368	**U1502B**	**33R1, 131-134 cm**	**897.41**	50.50	1.76	17.40	10.62	6.03	0.16	6.67	3.87	0.28	97.27	4.97	-	-	33.7	207	229	115	142
368	**U1502B**	**18R4, 76-78 cm**	**834.36**	51.68	1.59	17.63	10.15	6.21	0.26	8.26	3.53	0.22	99.51	4.07	24.2	225	35.4	244	231	132	-
368	**U1502B**	**37R4, 129-132 cm**	**920.83**	52.18	1.80	15.35	10.61	6.45	0.17	7.96	3.79	0.06	98.36	3.84	37.1	-	33.6	227	233	106	153

Supplementary material 3: Table of bulk-rock major and trace element compositions of magmatic rocks from IODP expeditions 367/368, Sites U1500 and U1502. (ppm=µg/g, detailed method provided in the method section of the proceedings of Expeditions 367/368[17]).